



The Oil Market Outlook: Geology Matters

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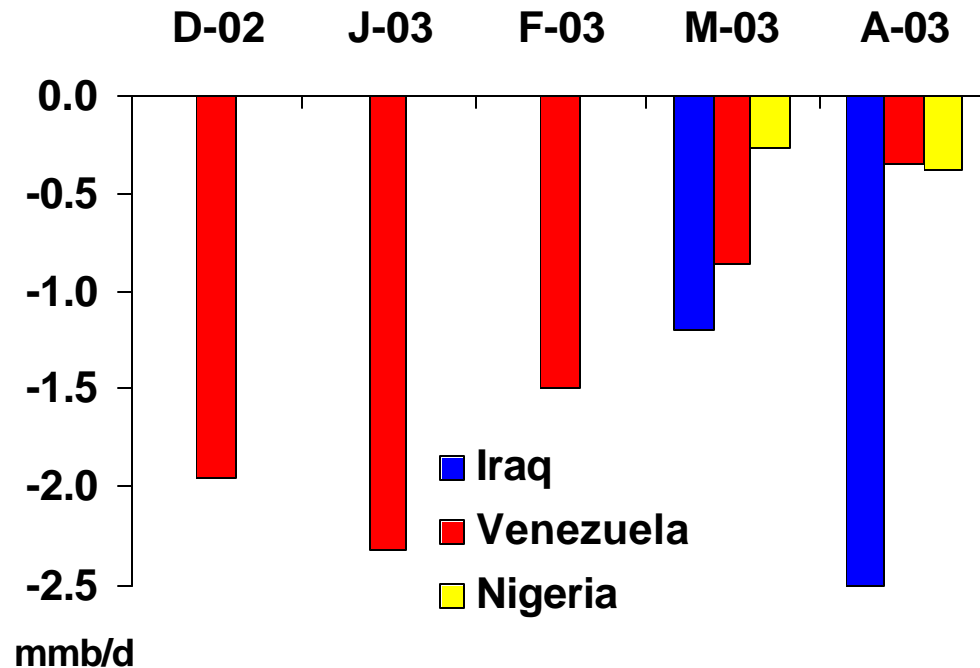
- Since December, oil markets have seen massive supply disruptions, war and instability, unusually strong winter demand and low stocks
- This made OPEC's job of trying to support prices unusually easy (the organization has been focused on containing price spikes, not defending against low prices)
- OPEC is in transition now back to price defense
- 3Q 2003 will be difficult with the return of Iraqi exports and lower quotas in June
- After 3Q 2003, each quarter will be progressively more difficult for OPEC, and early 2004 looks untenable for OPEC without unexpected and serious production problems somewhere

Last 6 Months: Three Supply Shocks...

The market was hit by a triple whammy of supply shocks in the past few months:

- First from the unexpected **Venezuela** strike
- Then the predictable but still very significant outbreak of war in **Iraq**
- And finally by losses due to civil strife in **Nigeria** just as refinery demand for the country's gasoline-rich grades was stepping up

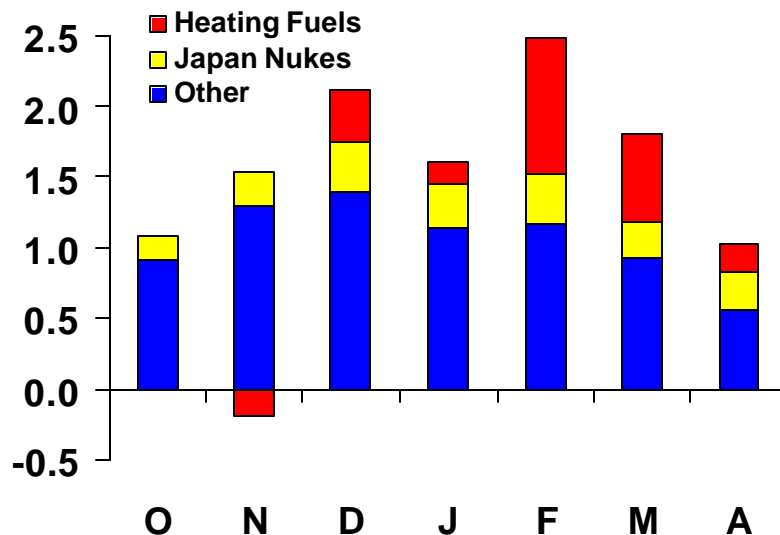
Recent Lost Production Due To Supply Shocks



...And High Demand, Draining Stocks Further...

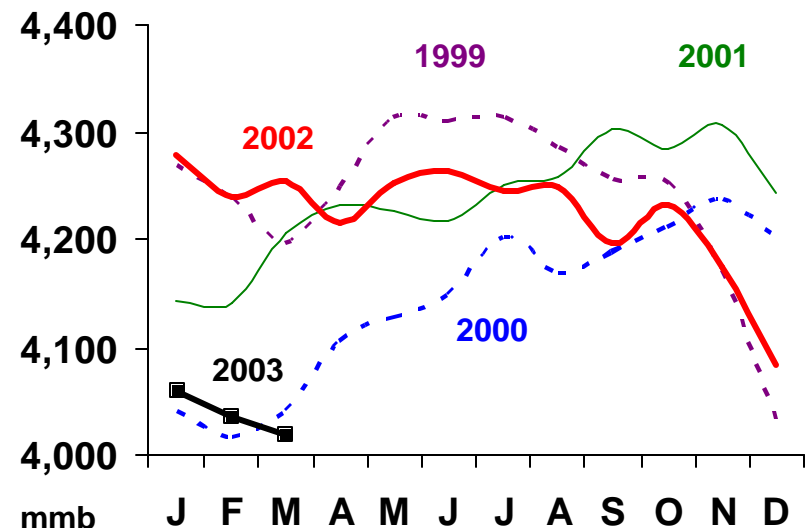
- Strong year-on-year demand growth this winter:
 - 1.7 million b/d in 4Q 2002 and 1Q 2003
 - Strength driven by cooler winter and Japanese nuclear outages
- Supply shocks, strong demand pushed stocks to low 2000 levels

Year-on-Year Global Demand Growth Drivers



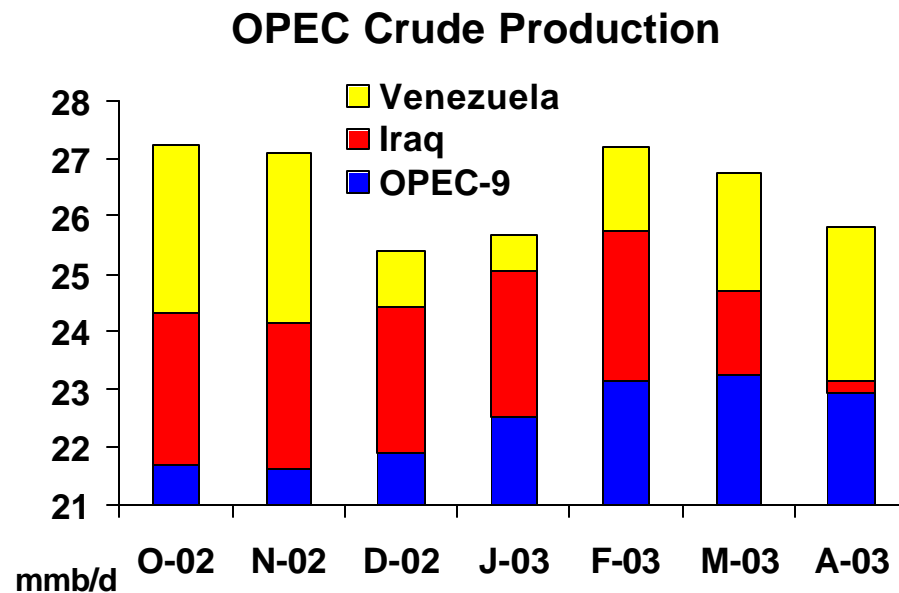
mmb/d

Total Global Commercial Inventories



...But OPEC Effectively Handled The Challenge

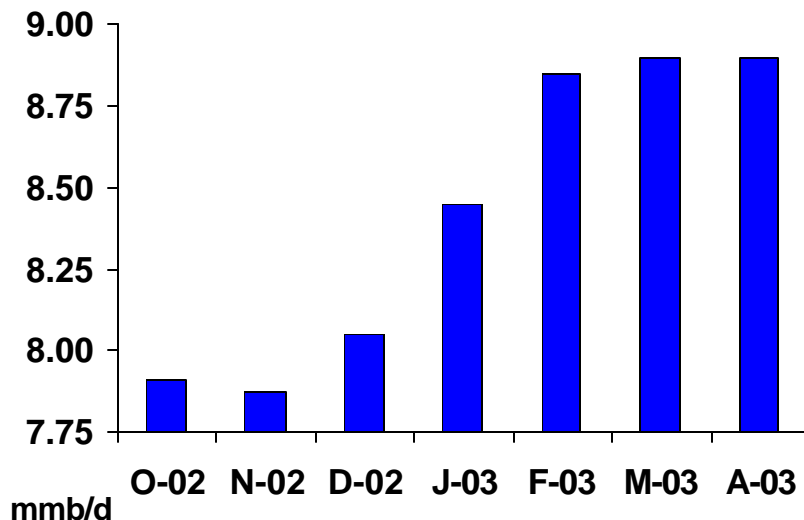
- OPEC Production outside Venezuela and Iraq rose 1.5 million b/d between November and April
- **Physical shortages did not develop**, refineries ran normally despite relatively low inventories
- As a result, despite much tighter fundamentals than the run up to the last Gulf War, **daily WTI prices only peaked at \$37.83 in March 2003, compared to \$40.42 in October 1990**



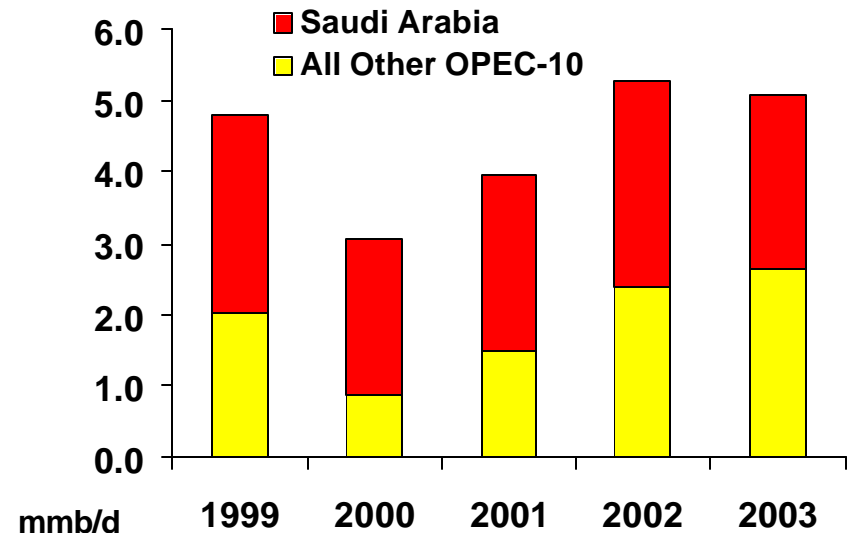
Saudi Arabia: Key Market Stabilizer

- Saudis alone accounted for 1.0 million b/d of 1.5 million b/d November-April increase
- Saudi Arabia is only country with necessary spare capacity to rapidly fill supply gaps:
 - 2.9 million b/d of spare capacity in 2002
 - Saudi alone accounts for approximately half of all OPEC-10 spare capacity

Saudi Crude Production



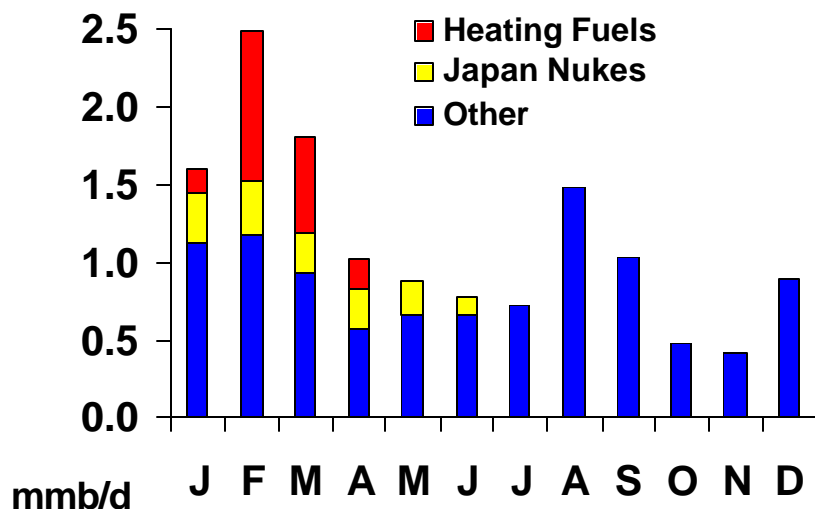
OPEC-10 Spare Capacity



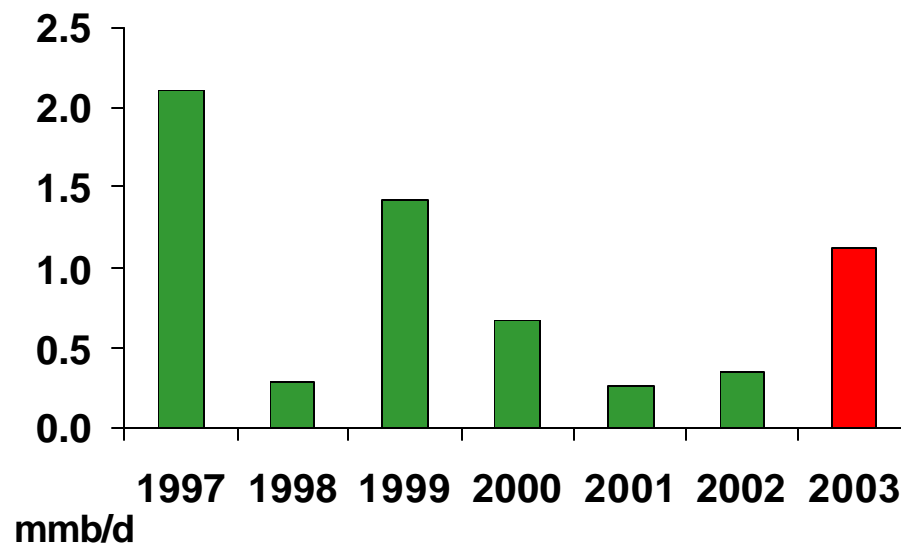
Slower Demand Going Forward

- Factors that had supported demand in 1Q to disappear:
 - Japanese nuclear reactors should come back online by July
 - Assuming another normal winter, no extra boost to demand growth in 4Q
- Underlying demand growth averages about 800,000 b/d for rest of 2003
- Average 2003 demand growth of 1.1 million b/d

Year-on-Year Global Demand Growth



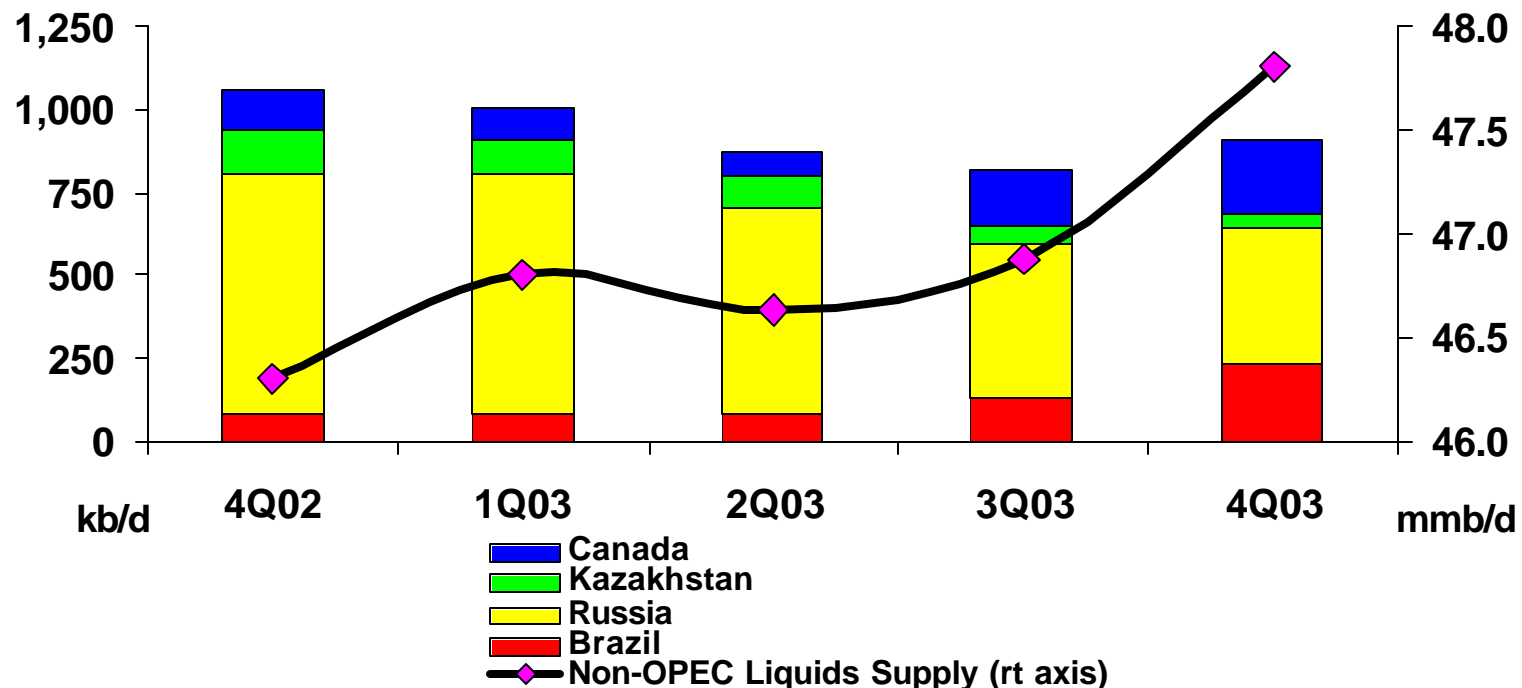
Year-on-Year Global Demand Growth



And Non-OPEC Supply Keeps Growing

- Every quarter of 2003 except 2Q will see rising Non-OPEC Liquids supply, with the strongest growth in 4Q 2003
- On a year-on-year basis, Russia will continue to lead the growth at 550,000 b/d
- Non-OPEC Liquids and OPEC NGL supply in 2003 will rise by 1.4 million b/d, nearly filling the 1.5 million b/d year-on-year rise in global refinery runs

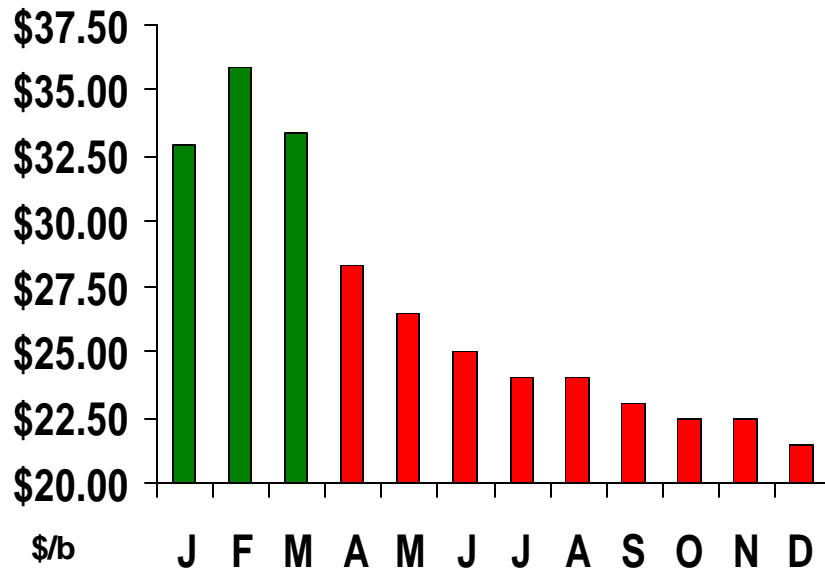
Absolute and Year-on-Year changes in Non-OPEC Crude Supply



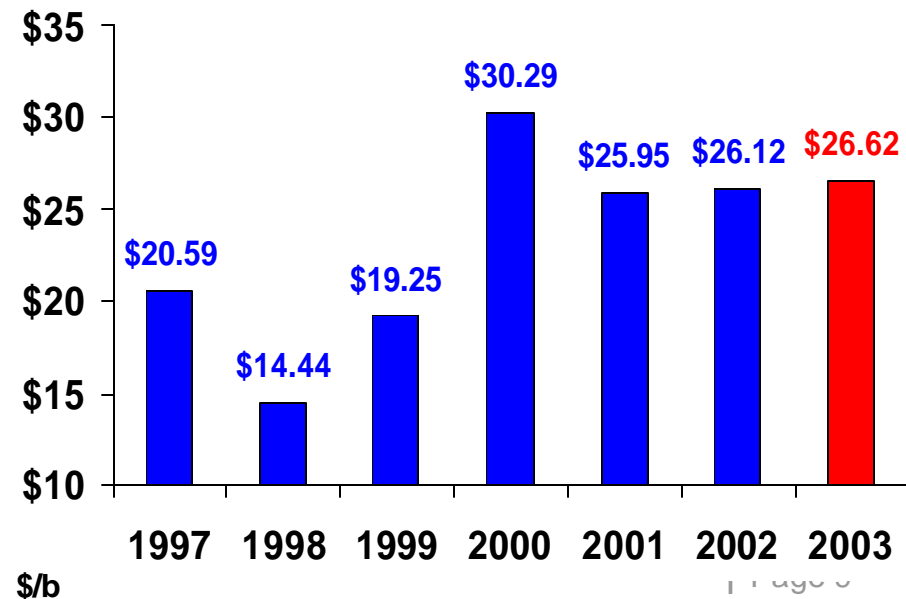
2003 Prices Strong, But Fall As Year Progresses

- Despite the loss of the war premium, fundamentals remain tight enough to keep current prices in the upper-\$20s.
- **However, as inventories rise, prices will be pressured downwards.**
- Prices will be relatively high for 2003 thanks to high 1Q prices in the run-up to war in Iraq.

2003 WTI Prices



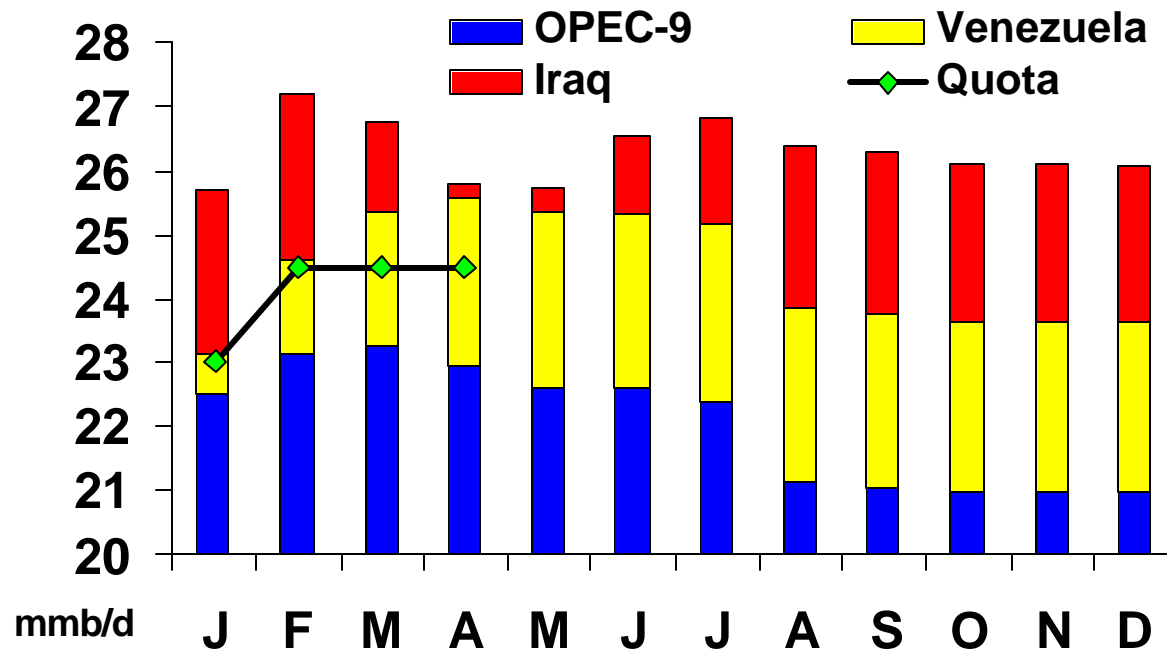
Annual WTI Prices



But 2004 Will Be The Moment of Truth

1. Seasonal demand decline means the first half of 2004 will force OPEC to implement a very large production cut from already low levels
2. Uneven increase in capacity among OPEC-10 has initiated a debate about quota redistribution that will heat up when more cuts need to be made
3. Saudi Arabia's unique position as swing producer will leave it with the difficult choice of enduring an untenable price and low production, or crashing the price.

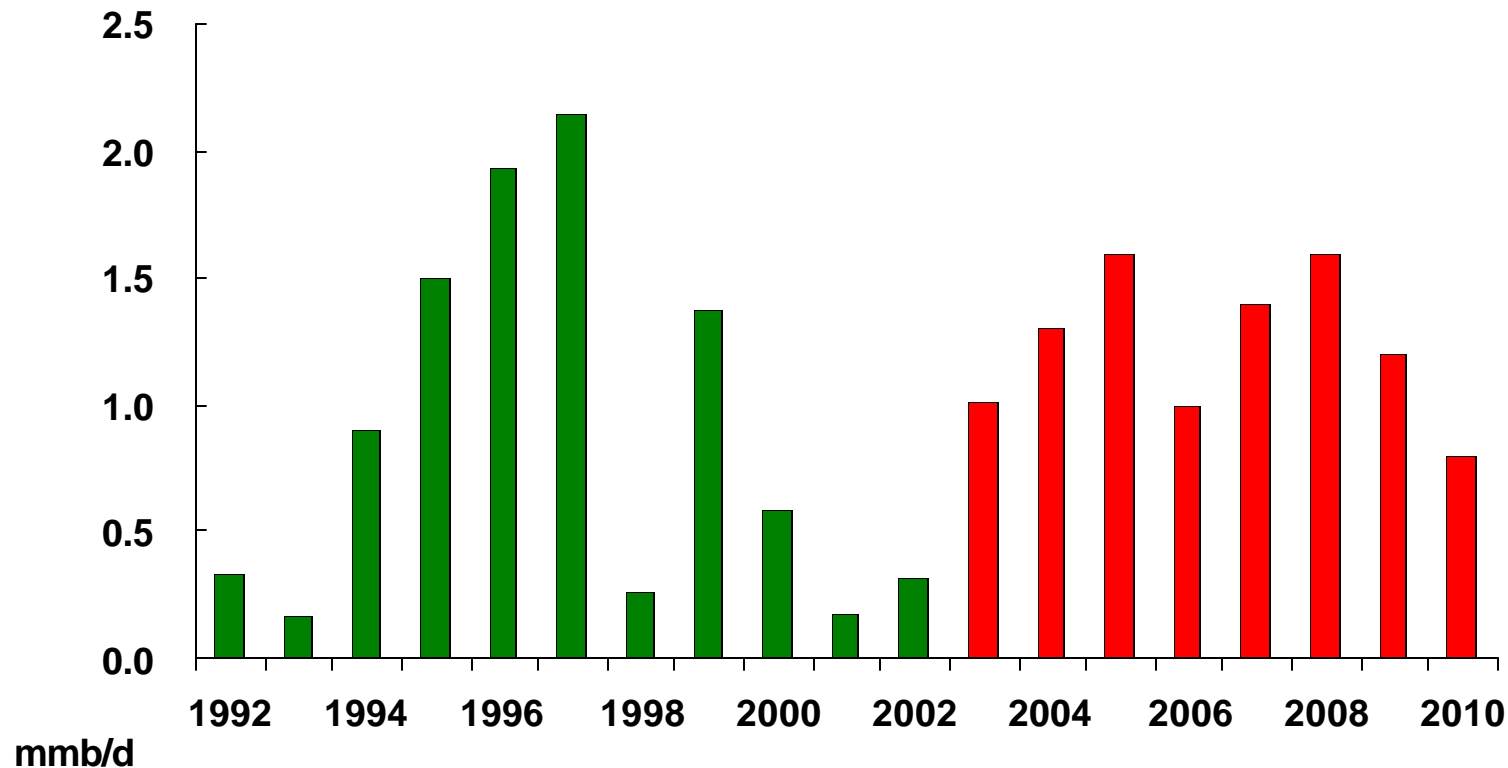
2003 OPEC production and Quotas



OPEC's Problem Has Been Building For Years

The demand environment since 1998 has been depressed, forcing OPEC-10 to adopt a defensive posture. In the next eight years, PFC assumes that demand will improve and grow on average at 1.2 million b/d, but will not return to the high demand growth seen in 1996 and 1997.

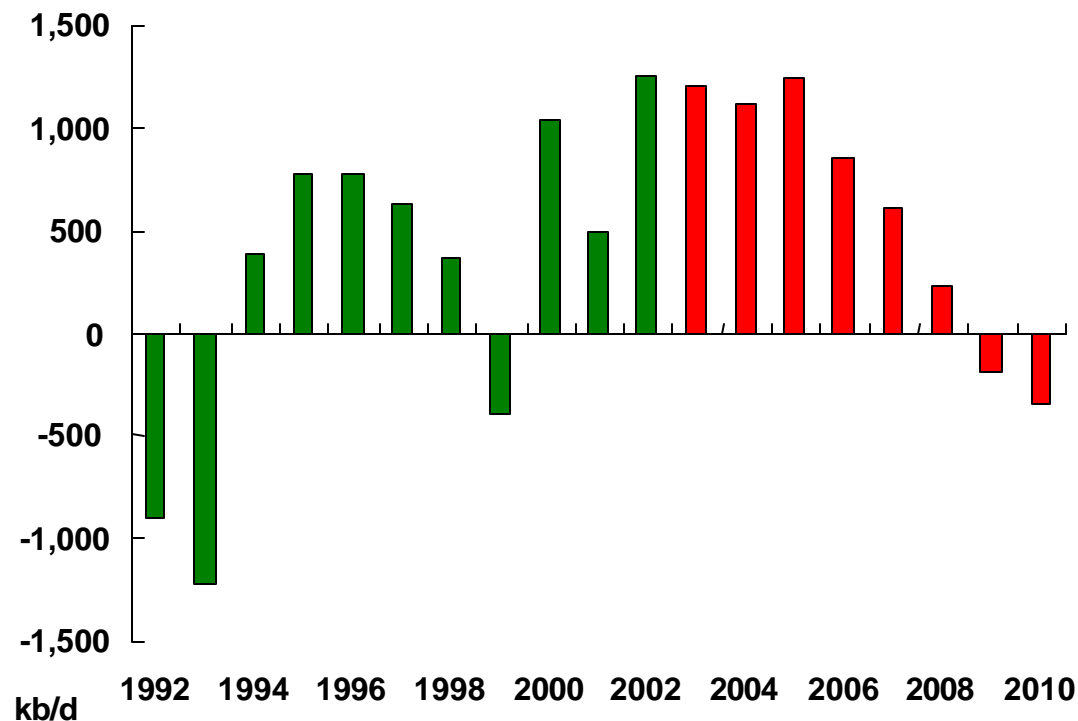
Global Demand Growth



OPEC's Problem Has Been Building For Years

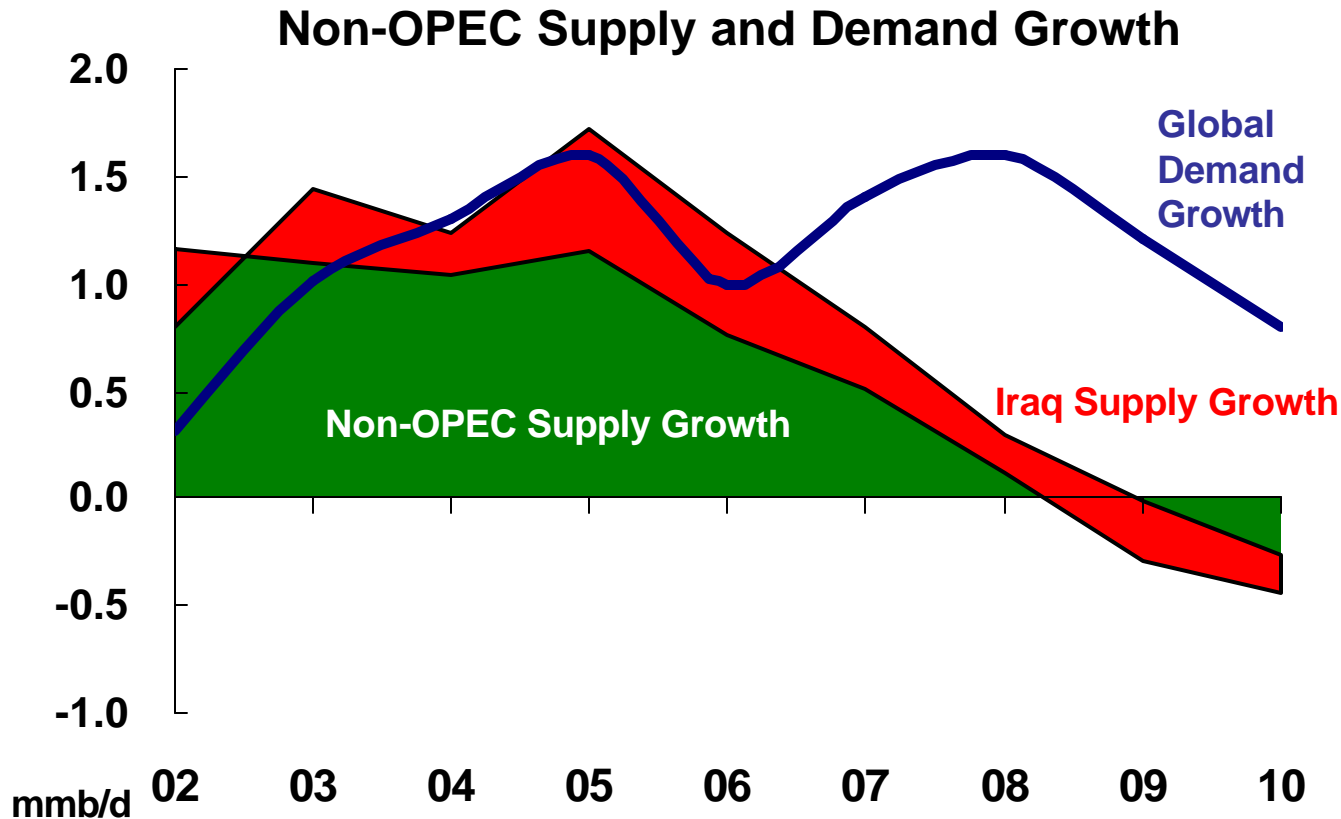
Besides for hurting demand (particularly in Non-OECD Asia), continued \$18+ WTI prices will keep Non-OPEC Supply growing rapidly at or near 1 million b/d per year through 2005. Even beyond that time frame, new projects are likely to be inaugurated keeping Non-OPEC supply growing if prices stayed up.

Non-OPEC Supply Growth



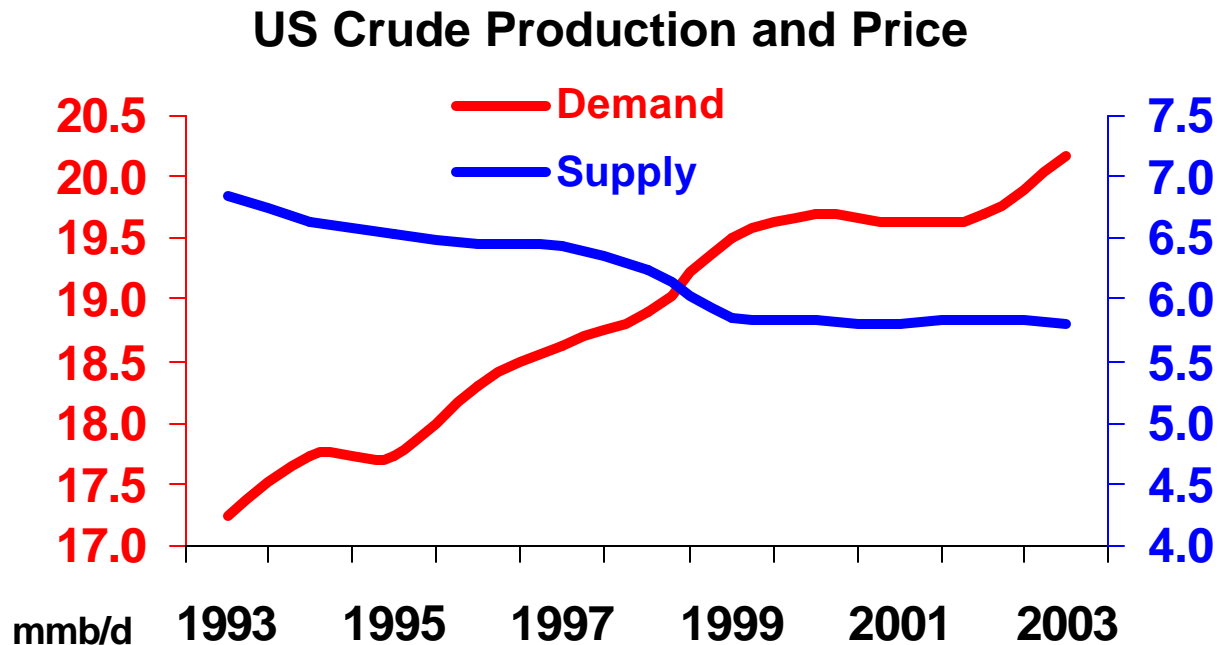
OPEC's Problem Has Been Building For Years

- The return of Iraqi production and any increases going forward would only take away more market share from OPEC-10
- If OPEC were to continue its price defense strategy by cutting back production further: Non-OPEC and Iraqi supply would fill all demand growth through at least 2006, and probably beyond.



US Crude Production in Long-Term Decline

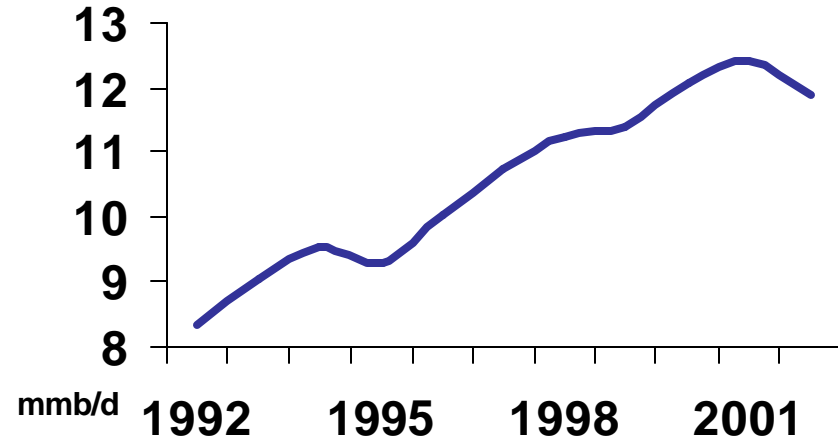
- Periods of high prices slow both the decline in production and the rise in demand, but will reverse neither of these trends
- US Crude production peaked in 1970, and has been in long-term decline since then
- ANWR could add over 500,000 b/d to US production, but cannot reverse the decline



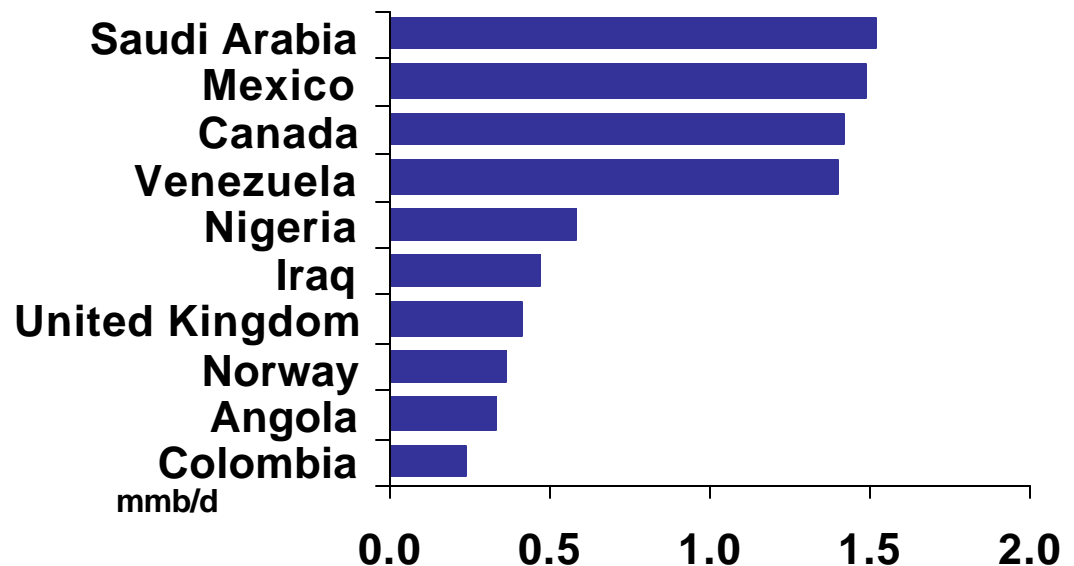
US Crude Oil Imports

- US Crude Imports average around 9.5 million b/d
- 2002 imports were low due to supply disruptions
- April 2003 saw Saudi crude imports reach over 2 million b/d, their highest levels since 1991

Total US Crude and Product Imports



Sources of US Crude Imports in 2002



Increasing West African Exports to the US Will Not Eliminate the Need for Gulf Imports

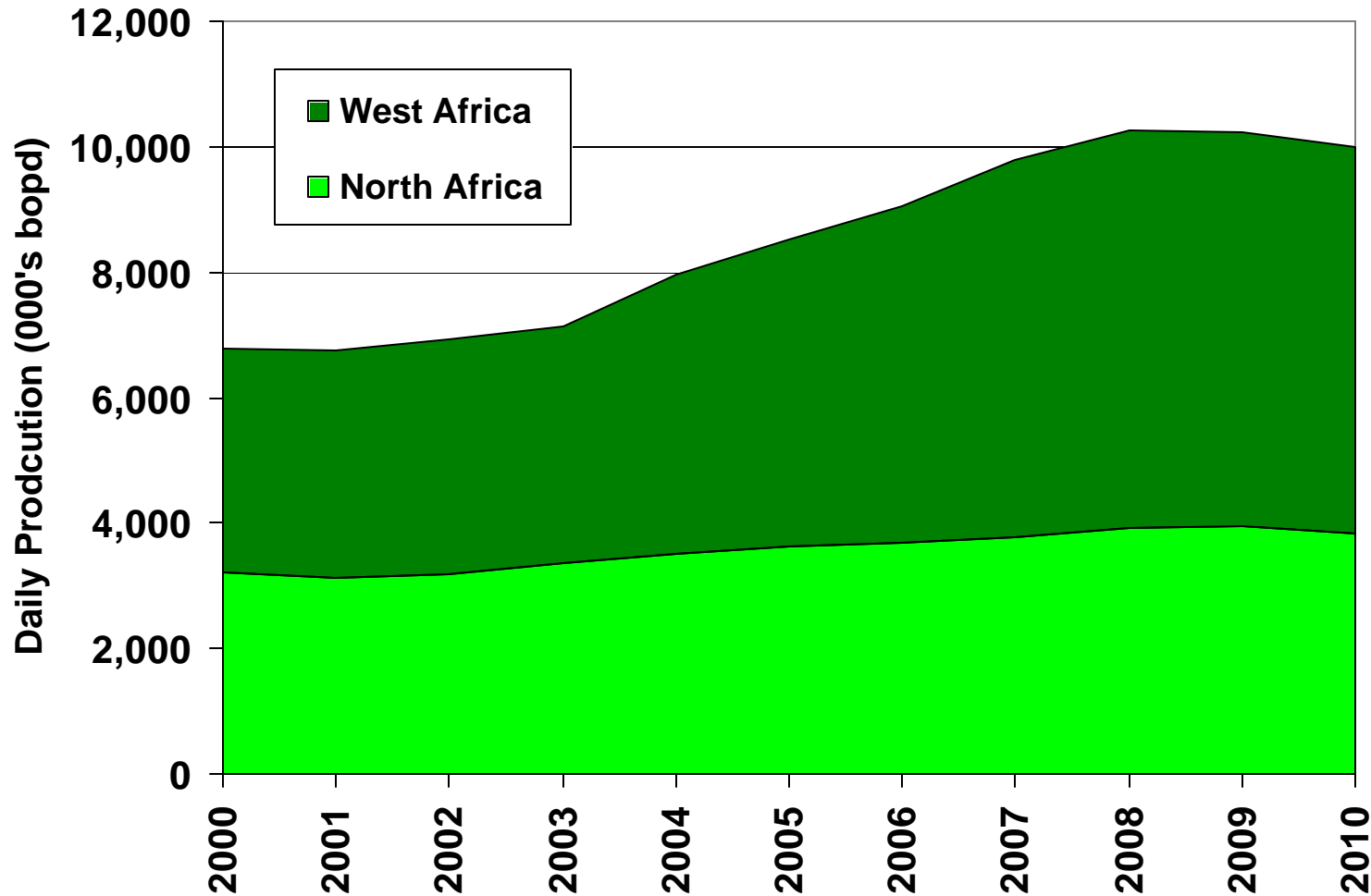


Increasing West African crude imports would increase the diversity of US crude import sources, but:

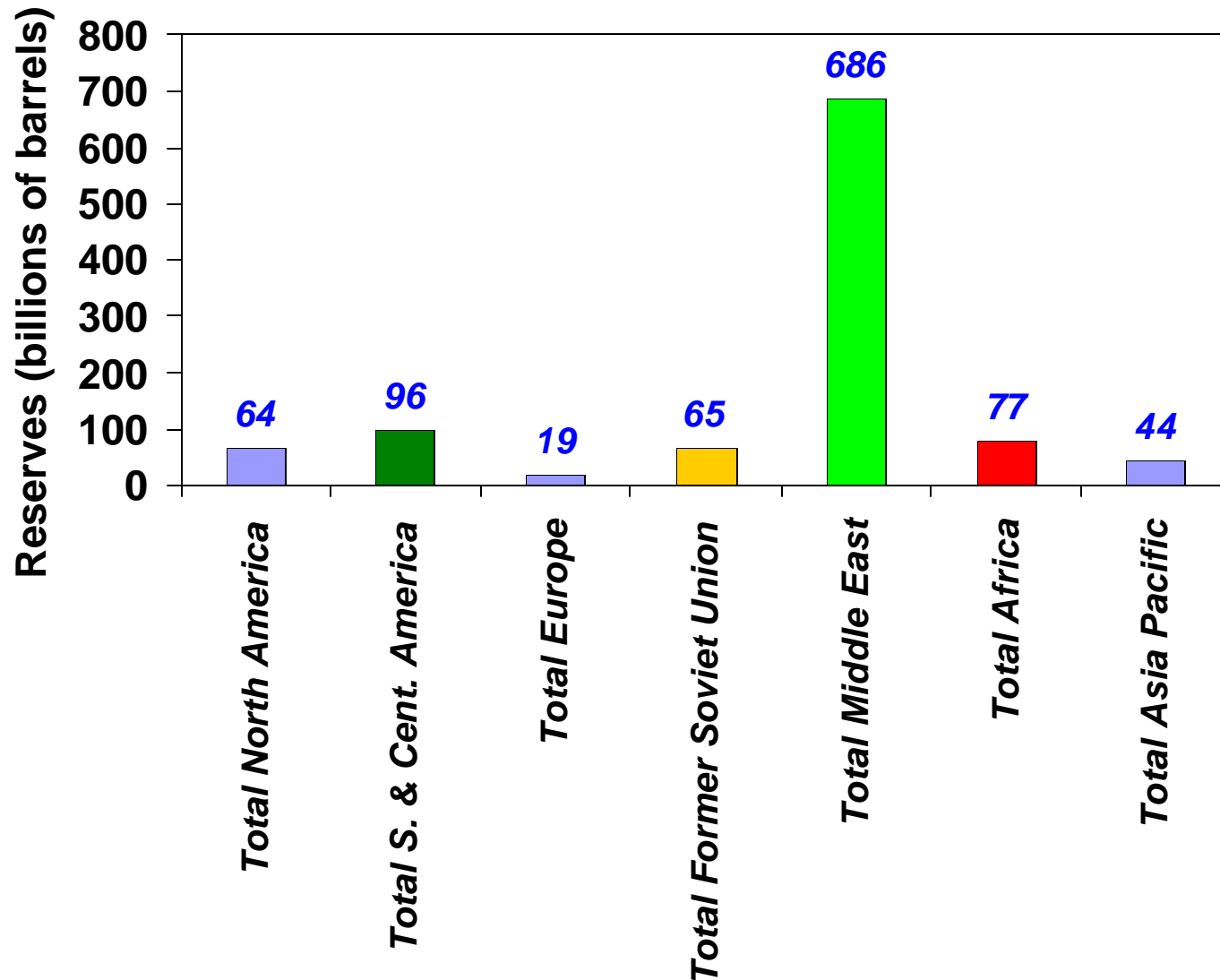
- Declining US production and rising consumption inevitably means more of the oil consumed in the United States will be foreign
- Political volatility in West African countries could disrupt production, even on offshore facilities
- Even with increased imports from West Africa, the United States would still need to import crude from the Persian Gulf, most of which would likely come from Saudi Arabia.

Bottom line: US crude imports from West Africa could increase in coming years, backing out some Persian Gulf barrels, but imports from the Gulf will still make up a large percentage of US imports

Oil Production in Africa Set to Grow by as Much as 45-50% Through This Decade



Even With Expanding Reserves in Africa the Middle East Will Dominate



The Persian Gulf's Importance Will Remain Undiminished



Even if the United States replaces some imports from the Persian Gulf with crude from West Africa or elsewhere, the United States will still remain dependent on the Persian Gulf for energy security

- Higher imports from West Africa would back out Persian Gulf volumes, but *oil is fungible*
- If Gulf supplies were disrupted, regions that consume Persian Gulf crude would immediately look elsewhere for alternative supplies. Since Gulf volumes are so large, prices would spike globally; prices in the US would be affected even if US imports from the Persian Gulf were relatively small

Bottom line: Replacing US crude imports from the Persian Gulf with imports from West Africa does not insulate the United States from Gulf supply shocks

Saudi Arabia is the Lynchpin

- **Saudi Arabia has strategic significance as a crude oil supplier for two main reasons:**
 - Its willingness to maintain substantial excess capacity, currently about half of all excess capacity in OPEC
 - Its ability willingness and to swing production to meet changing market conditions
- **No other country in the world can perform these two functions to the same extent as Saudi Arabia**
- **Even if the United States did not import any Saudi oil, global prices would still be determined by Saudi production policy**
- **Saudi and American interests coincide:**
 - Prices that are too high harm the US consumer, but they also hurt global oil demand and thus weaken demand for Saudi crude
 - Prices that are too low harm the US energy industry just as much as they harm Saudi Arabia's budget
- **While diversifying supplies is desirable, the world will continue to need both new supplies and existing OPEC supplies, so Saudi Arabia will continue to be the lynchpin of the global oil market**



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As A Declining Iraq Returns

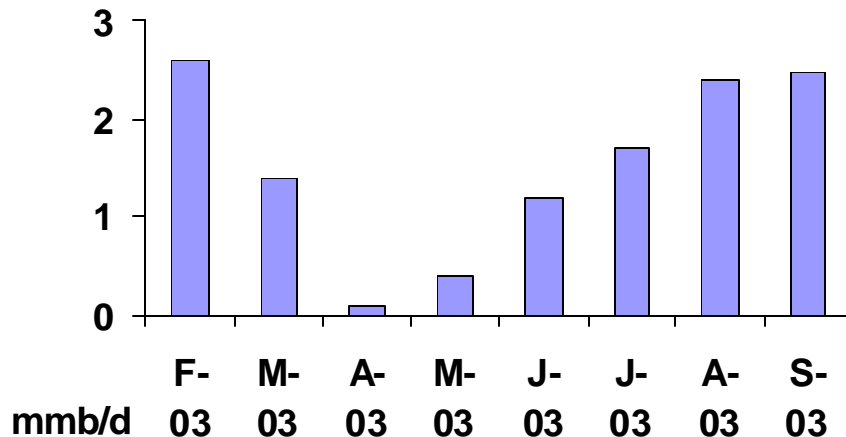
■ Technical issues:

- Relatively little damage to fields/infrastructure, though looting causing problems
- Halliburton statement about getting up to “regional standards” is an uncertainty
- Fields continue to decline until substantial investments made

■ Political issues:

- US revenue requirements mean it wants a quick resumption
- But lack of government recognized by UN and existing sanctions/OFF regime mean US has to win battle at UN before exports can resume

PFC Energy Projected Iraqi Production Return



Iraqi Capacity Production On A Declining Trend

